DOCUMENT RESUME

ED 296 944 SO 019 290

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TITLE Geographical Knowledge of University Students.
PUB DATE May 88
NOTE 27p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Curriculum Development; *Educational Change; Educational Research; *Geographic Location; *Geography Instruction; Higher Education; Maps; *Map Skills; *School Surveys; Social Studies; Teacher Effectiveness
IDENTIFIERS *University of South Dakota

ABSTRACT

In order to obtain information on the status of geographical knowledge possessed by University of South Dakota (Vermillion) students, a geography survey designed to determine specific knowledge about the locations of bodies of water, countries, and cities was conducted. One map was used for identifying cities, while the second was used for identifying bodies of water and countries. The survey was administered to 660 students. If 70 percent is regarded as a passing grade at the college/university level, then the students in this study failed in their knowledge of locations of water bodies, countries, and cities. The highest mean correct response was 67 percent for locations of water bodies. The location of countries was a distant second with a mean response rate of 40 percent. Locations of cities was the lowest of the three categories with a mean response of 32 percent. The study indicates a statistically significant difference between those students who have had a geography class in high school and those who have not. However, the mean of correct responses of locations of water bodies for those who have had a geography class is 71 percent barely a passing score. For those having had a geography class the mean scores for locating countries and cities is only 43 percent and 35 percent respectively. Data are illustrated in tables. The geography survey which was administered in the study is appended. (SM)

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Geographical Knowledge of University Students

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May, 1988

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Running Head: GEOGRAPHICAL

Geographical Knowledge of

University Students

According to a recent news article, when over 1800 college students in North Carolina were asked to locate the Seine River, only a third of them knew it was in France. Of Freshmen tested at St. Mary-of-the-Woods College in Indiana, ninety-five percent could not locate Vietnam on a map. In north Dallas, one out of five twelve-year-olds mistook Brazil for the United States on a map of the world (Solorzano, 1985). These findings are not unlike those of a study done in 1982 by the Association of American Geographers which was given to 3000 students at 185 colleges and universities. In this survey of basic geographical knowledge, college seniors missed half the questions. The final report of this study, "Geography and International Knowledge," concluded that Americans' knowledge of basic geography is appallingly low (Shabad, 1982).

National organizations are also alarmed at the lack of geographical knowledge possessed by students on all levels of education. The National Geographic Society and the Southern Governors' Association have both prepared documents concerning the lack of geographical and international awareness.

Today there is a general movement to correct what is perceived as a lack of global perspective in our society. Educational reformers increasingly call for more study of

geography, more attention to the ultimate benefits of foreign languages, and more international content throughout the curriculum. Knowing our international neighbors is becoming a priority item to many Americans.

Before curricular changes can be made it is essential that educators have base-line information on the status of geographical knowledge possessed by their students. This was the case at The University of South Dakota. Data were missing on the number of students who had taken a high school geography course and the knowledge of locations of water bodies, countries, and cities held by these students. The time was right to conduct a geographical knowledge survey of selected students at The University of South Dakota.

Research Procedures

A geography survey designed to determine specific knowledge about the locations of bodies of water, countries, and cities was created by modifying a geography test which appeared in ACCESS (1987, pp. 8,9). The original test was one in which lists of bodies of water, countries and cities were used. In the modified version of the test used in this study most of the same water bodies, countries, and cities were used but two maps were used instead of one so that test-takers could read them more easily. One map was used for identifying cities while the second one was used for identifying bodies of water and countries. A brief biographical data section was incorporated into the beginning of

the survey.

With the help of the English Department the survey was administered to 660 students enrolled in freshmen English literature classes at The University of South Dakota. A step-by-step instruction sheet was provided for all English instructors administering the survey in their classes. The instructions were to be read to the students to ensure administration procedures were standardized with all classes. The students completed the survey in September, 1987, the data were entered into the University computer and the findings were analyzed.

Results

Table 1 reflects an overall analysis of the geography survey, giving the average percentage correct in each of the three location categories (water, country, city) for the total sample of students completing the survey. For the location of ten water bodies, the mean response rate was sixty-seven percent. Of the locations of thirty-three countries, the mean response was forty percent correct, while for the thirty-three cities a mean response rate of thirty-two percent was achieved by the students.

Insert Table 1 about here

Student responses were analyzed by a two-way analysis of variance, with male/female responses as one independent variable, and the other independent variable being whether or not students

had taken a high-school geography class. Three two-by-two analyses were conducted to determine the effects of the two independent variables, sex and geography class, with each of the three location categories, water, country, and city. Table 2 gives means of interaction effects between sex and geography class with locations of water bodies. The table also shows means of correct responses by geography class/no geography class in the right column, and male/female mean scores in the bottom row. Mean scores by both geography class and sex reveal means that are significantly different in favor of those students who have had a geography class and in favor of males. The central portion of the table reports means of the interaction effect between sex and geography class. The level of interaction effect between the independent variables was not signficant.

Insert Table 2 about here

Table 3 reports means of the interaction effects between sex and geography class on students' ability to correctly locate countries. The table also reports the means of the correct responses by geography class and be sex in the right column and bottom row respectively. The differences between mean scores of correct responses by geography class and by sex are both significant in favor of those who have had a geography class in high school and in favor of males, while level of interaction effects between geography class and sex on ability to locate

countries is not significant.

Insert Table 3 about here

Table 4 presents means of the interaction effects between sex and geography class with ability to locate cities. Again, the level of interaction between the two independent variables is not significant. However, the analysis of mean scores for correct responses by sex does indicate a difference in favor of males that is statistically significant.

Insert Table 4 about here

Analysis of variance (ANOVA) results are presented in Tables 5, 6, and 7, for the dependent variables, water bodies, countries and cities respectively. In none of the three tables does the level of the effect between sex and geography class yield a value considered significant.

Insert Table 5 about here

Insert Table 6 about here

Insert Table 7 about here

Conclusions

If 70 percent is regarded as a passing grade at the college/university level then the students in this study failed in their knowledge of locations of water bodies, countries, and cities. The highest mean correct response was 67 percent for locations of water bodies. The locations of countries was a distant second with a mean response rate of 40 percent. Locations of cities was the lowest of the three categories with a mean response of 32 percent. These scores are appallingly low.

The study indicates a statistically significant difference between those students who have had a geography class in high school and those who have not. However, the mean of correct responses of locations of water bodies for those who have had a geography class is 71 percent, barely a passing score. For those having had a geography class the mean scores for locating countries and cities is only 43 percent and 35 percent respectively. These are hardly scores in which we can take great pride.

Males did have an edge over females with males having significantly higher mean values in locating water bodies, countries and cities. However, once again,these mean value scores were not impressive. Scores on two of the three categories would have been considered failing.

It may not be crucial that an individual know the specific location of a water body, city, or country, but may we not draw a

corollary to suppose that this individual probably doesn't know much about the water bodies, countries, or cities in general. Ignorance of basic geography points toward a nonchalance regarding world affairs in general. And therein lies a serious problem for our nation.

References

Geography Survey. (1987, May). Access, pp. 8,9.

Shabad, T. (1982, May 17). Americans get a failing grade in geography. The New York Times, p. A7.

Solorzano, L. (1985, March 25). Why Johnny can't read maps, either. U.S. News and World Report, p. 50.

Table 1

Geographic Locations - Means of Correct Responses

Category	$\bar{X}$(%)	SD(%)
Water bodies	67	28
Countries	40	25
Cities	32	21

N = 660 students responding to each of three location categories.

Table 2

Location of Water Bodies - Mean Values

High School Geography	MALE N	MALE $\bar{X}$(%)	MALE SD(%)	FEMALE N	FEMALE $\bar{X}$(%)	FEMALE SD(%)	Score/Water (By Geog.) $\bar{X}$(%)	Score/Water (By Geog.) SD(%)
Interaction Effects								
Yes	126	78	27	161	66	27	71**	28
No	122	73	26	251	60	27	65	27
Score/water (By sex)		76*	27		62*	27		

*$P<.001$ **$P<.05$

Table 3

Location of Countries - Mean Values

Interaction Effects

High School Geography	MALE N	MALE $\bar{X}$(%)	MALE SD(%)	FEMALE N	FEMALE $\bar{X}$(%)	FEMALE SD(%)	Score/Countries (By Geog.) $\bar{X}$(%)	Score/Countries (By Geog.) SD(%)
Yes	126	53	27	161	35	22	43**	26
No	122	47	28	251	33	21	38	25
Score/Countries (By Sex)		50*	28		34	22		

*$P < .001$ **$P < .005$

Table 4

Location of Cities - Mean Values

Interaction Effects

High School Geography	MALE N	MALE $\bar{X}$(%)	MALE SD(%)	FEMALE N	FEMALE $\bar{X}$(%)	FEMALE SD(%)	Score/Cities (By Geog.) $\bar{X}$(%)	Score/Cities (By Geog.) SD(%)
Yes	126	41	24	161	29	18	35	22
No	122	37	26	251	27	17	31	20
Score/Cities (By Sex)		39*	25		28	17		

*P<.001

Table 5

Analysis of Variance to Assess Effects of Sex and Geography Class on Knowledge of Locations of Water Bodies

Source	DF	Sum of Squares	F	P
Sex	1	23136.0	32.19	<.0001
High School Geography	1	3618.5	5.03	<.0252
Sex/Geography	1	58.8	0.08	<.7750
Error	656	471462.4		

Table 6

Analysis of Variance to Assess Effects of Sex and Geography Class on Knowledge of Locations of Countries

Source	DF	Sum of Squares	F	P
Sex	1	37983.2	66.33	<.0001
High School Geography	1	2408.3	4.21	<.0407
Sex/Geography	1	769.0	1.34	<.2469
Error	656	375677.0		

Table 7

Analysis of Variance to Assess Effects of Sex and Geography Class on Knowledge of Locations of Cities

Source	DF	Sum of Squares	F	P
Sex	1	17663.1	42.53	<.0001
High School Geography	1	1365.5	3.29	<.0703
Sex/Geography	1	157.7	0.38	<.5380
Error	656	272475.1		

APPENDIX A

Geography Survey Response Sheet

GEOGRAPHY SURVEY

PART I. Please check the appropriate response to each question.

1. Year in School? ___Freshman, ___Sophomore, ___Junior, ___Senior
2. Sex? ___ Male, ___Female
3. Have you had a geography course in high school? ___Yes, ___No
4. Have you had a geography course in college? ___Yes, ___No

PART II. Match each number on the map with the specific body of water, country, or city listed below. Numbers 1-10 on Map 1 are water areas, numbers 11-43 on Map 1 are countries, and numbers 44-76 on Map 2 are cities. Write the number before the correct response

Water Bodies (numbers 1-10)

___Indian Ocean
___Bering Sea
___Strait of Magellan
___Mediterranean Sea
___Atlantic Ocean
___North Sea
___Persian Gulf
___Pacific Ocean
___Coral Sea
___Caribbean Sea

Countries (numbers 11-43)

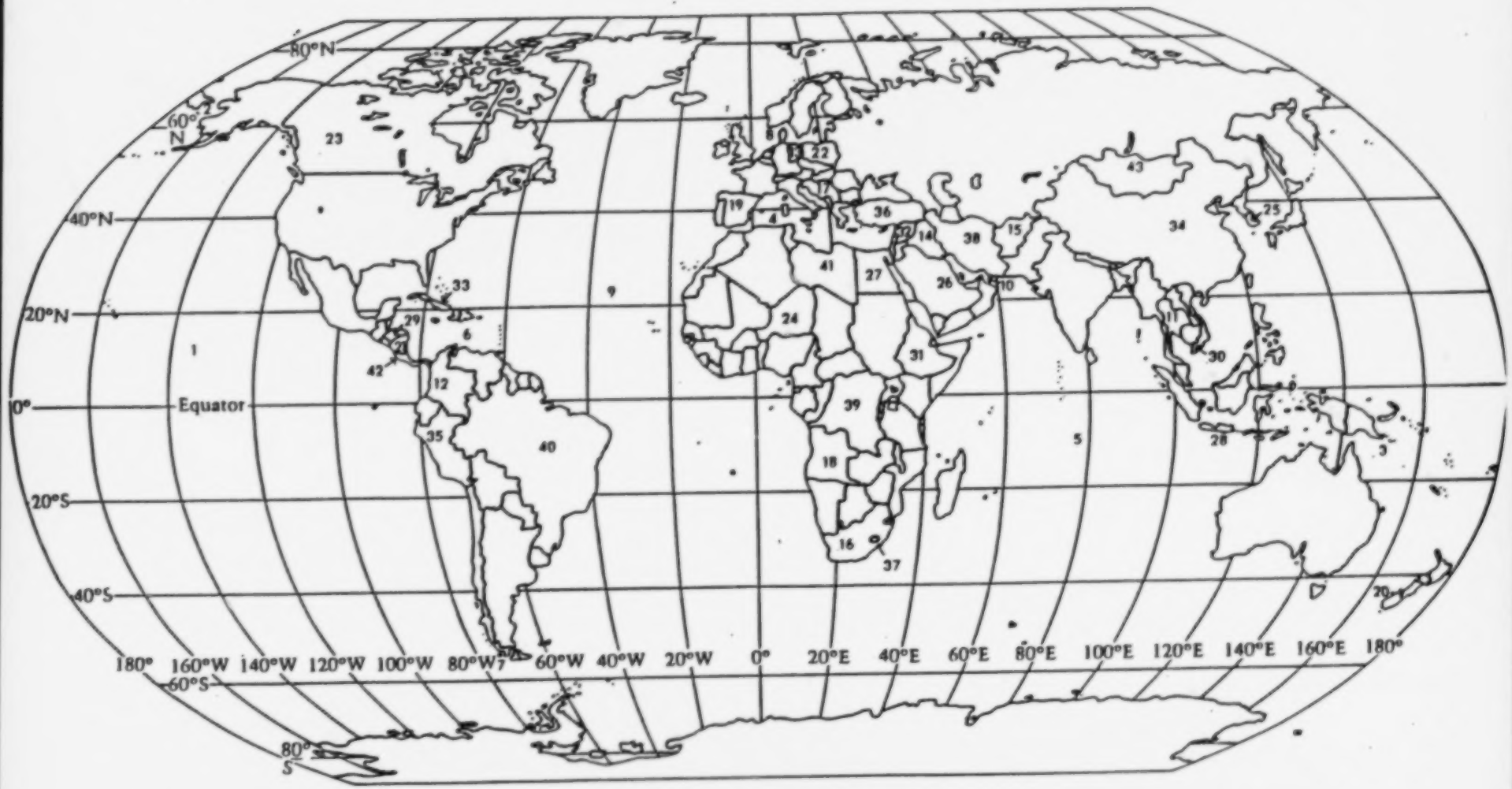
___East Germany
___Brazil
___Spain
___Saudi Arabia
___Poland
___Yugoslavia
___Mongolia
___Turkey
___Iran
___Indonesia
___Thailand
___Vietnam
___Syria
___Afghanistan
___People's Republic of China
___Korea
___New Zealand
___Angola
___Niger
___Zaire
___South Africa
___Lesotho
___Ethiopia
___Libya
___Egypt
___Peru
___Columbia
___Canada
___Honduras
___Nicaragua
___Costa Rica
___Cuba
___Iraq

Cities (numbers 44-76)

___Chicago
___Leningrad
___Rome
___Berlin
___Moscow
___Cairo
___Damascus
___Tehran
___Beirut
___Delhi
___Phnom Penh
___Ulaanbattar
___Beijing
___Shanghai
___Hong Kong
___Manila
___Kinshasa
___Tripoli
___Nairobi
___Casablanca
___Buenos Aires
___Caracas
___Lima
___Montreal
___Halifax
___Winnipeg
___San Salvador
___Mexico City
___Managua
___Mecca
___Rio De Janeiro
___Christchurch
___Melbourne

APPENDIX B

Map 1. Water Bodies and Countries



Map 1. Water Bodies and Countries

APPENDIX C

Map 2. Cities

Map 2. Cities

APPENDIX D

Instructions for Administering Geography Survey

Instructions for Administering Geography Survey

1. Explain that this survey is measuring geographic locations of water bodies, countries, and cities around the world.

2. Each student should receive one answer sheet and two different maps. Map 1 has numbers on it which represent water bodies and countries. Map 2 has numbers which represent cities.

3. Please explain the procedures carefully.

   Procedure 1. Complete the demographic information at the top of the answer sheet. Do not place your name on this sheet.

   Procedure 2. Explain the maps and the answer sheet. Map 1 has a series of numbers which represent water bodies and countries. Numbers 1-10 on Map 1 are water bodies and numbers 11-43 are countries. The students are to write the number before the correct response on the answer sheet. (Example: Locate number 1 on Map 1. Number 1 is the Pacific Ocean. Students would write number 1 before Pacific Ocean on the answer sheet.) Map 2 has a series of numbers representing cities around the world and should be completed following the same procedures as on Map 1.

   Procedure 3. The student may separate the answer sheet from the maps to make it easier to complete the survey.

   Procedure 4. Students can now begin taking the survey. This survey should take approximately 20 minutes to complete. More time can be given if needed.

   Procedure 5. When the students complete the survey, they are to turn in the answer sheet and both maps. We do not want these items out among students as several classes at differing time periods will be taking this survey.

   Procedure 6. Please turn the materials back to the individual who initially gave them to you.

THANK YOU FOR YOUR COOPERATION IN MAKING THIS STUDY POSSIBLE!

Robert W. Wood Loraine Webster Charles Eicher